

JUDUL: PERANCANGAN SISTEM PARKIR *TOUCHLESS* DENGAN
MENGUNAKAN *BLUETOOTH LOW ENERGY* DI UNIVERSITAS
SURABAYA

Nama: Rudianto.

Jurusan: Teknik Elektro.

Pembimbing 1: Susilo Wibowo, S.T., M.Eng.

ABSTRAK

Tempat parkir kendaraan merupakan kebutuhan yang harus dipenuhi untuk semua pengaturan pelayanan publik. Akan tetapi pada masa pandemi saat ini, kita dituntut untuk selalu menjaga kebersihan tangan dari sentuhan terhadap benda-benda di luar rumah agar terhindar dari covid-19. Untuk mencegah penyebaran covid-19, penulis menciptakan sistem gerbang parkir otomatis. Penulis menggunakan komunikasi BLE (Bluetooth Low Energy) untuk menghubungkan antara perangkat user dan sistem gerbang parkir. Dilakukan beberapa pengujian berupa pengujian jarak dan waktu delay koneksi antara device user dan sistem gerbang parkir. Pada pengujian jarak koneksi, didapatkan hasil bahwa perangkat user masih terhubung dengan sistem pada rentang jarak 1 hingga 5 meter tanpa adanya hambatan antara device user dan sistem gerbang parkir. Pada rentang jarak tersebut angka RSSI menunjukkan rentang nilai sebesar -50,9 hingga -78,4 dBm. Tetapi jika terdapat hambatan antara device user dan sistem, maka jarak koneksi berkurang menjadi 1 hingga 3 meter. Dan angka pada RSSI menunjukkan rentang nilai sebesar -71,5 hingga -79,5 dBm. Selanjutnya untuk pengujian waktu delay koneksi, pengujian dilakukan sebanyak 2 kali dengan device yang berbeda. Untuk device A didapatkan rata-rata waktu delay sebesar 1,57 detik dan untuk device B didapatkan rata-rata 3,64 detik. Dari pengujian yang telah dilakukan maka komunikasi BLE dapat digunakan dalam sistem gerbang parkir.

Kata kunci: Parkir, BLE, ESP 32, Covid-19.

*TITLE: DESIGN OF PARKING SYSTEM TOUCHLESS USING BLUETOOTH
LOW ENERGY AT UNIVERSITY OF SURABAYA*

Name: Rudianto.

Dicipline: Electrical Engineering.

Advisor 1: Susilo Wibowo, S.T., M.Eng.

ABSTRACT

Vehicle parking is a requirement that must be met for all public service arrangements. However, during the current pandemic, we are required to always maintain hand hygiene from touching objects outside the house to avoid covid-19. To prevent the spread of covid-19, the author created an automatic parking gate system. The author uses BLE (Bluetooth Low Energy) communication to connect the user device and the parking gate system. Several tests were carried out in the form of testing the distance and connection delay time between the user device and the parking gate system. In testing the connection distance, the results show that the user device is still connected to the system at a distance of 1 to 5 meters without any obstacles between the user device and the parking gate system. In this distance range, the RSSI number shows a value range of -50.9 to -78.4 dBm. But if there is an obstacle between the user device and the system, the connection distance is reduced to 1 to 3 meters. And the numbers on the RSSI show a range of values of -71.5 to -79.5 dBm. Furthermore, for testing the connection delay time, the test was carried out 2 times with different devices. For device A, the average delay time is 1.57 seconds and for device B, the average delay is 3.64 seconds. From the tests that have been carried out, BLE communication can be used in the parking gate system.

Keywords: Parking, BLE, ESP 32, Covid-19.